



A hypogean new species of *Trechus* Clairville, 1806 (Coleoptera, Carabidae) from Portugal and considerations about the *T. fulvus* species group

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Abstract

A new hypogean ground beetle species, *Trechus tatai* n. sp. from the Montejunto karstic massif in Portugal is described. Morphological diagnostic characters of the imago are provided and the new species is included in the *Trechus fulvus*-group. Comments on the biogeography of hypogean carabid beetles in karstic areas of Portugal and an illustrated key to the males of the *T. fulvus*-group in the Iberian Peninsula are also included.

Key words: Trechinae, *T. fulvus*-lineage, hypogean, cave, Montejunto, Portugal

Introduction

The genus *Trechus* Clairville, 1806 is widely distributed throughout the Palaearctic and Nearctic regions, and also in the East Africa, though less diverse (Casale *et al.* 1998). There are more than 600 species described, most of them from the Palaearctic region (Moravec *et al.* 2003). Although there are important differences in external morphology, the more important diagnostic characters at species level are the details of the male aedeagus. In order to manage taxonomically such a large number of species, Jeannel (1927: 145) proposed dividing the genus *Trechus* into species groups, following the type of aedeagus, especially the median lobe and copulatory pieces. The *Trechus fulvus*-group is also characterized by species of large dimension, depigmented, with reduced eyes and deep front grooves and elytral striae well marked (Jeannel, 1927).

Despite the elapsed time and the need of an update (Ortuño & Toribio 2005), Jeannel's taxonomic organization continues to be used. The 53 species of *Trechus* known from the Iberian Peninsula (Serrano 2003; Ortuño & Arillo 2005; Ortuño & Toribio 2005; Reboleira *et al.* 2009) are included in 9 groups *sensu* Jeannel 1927 (modified by Ortuño & Toribio 2005): *T. angusticollis*-group 12 species, *T. austriacus*-group 2 species, *T. distigma*-group 2 species, *T. fulvus*-group 12 species, *T. quadristriatus*-group 6 species, *T. uhagoni*-group 10 species, *T. pandellei*-group 1 species, *T. pyrenaicus*-group 5 species, *T. tingitanus*-group 1 species, and *incertae sedis*-group 1 species.

The genus *Trechus* is a successful colonizer of the subterranean habitat due to its geophilic, lucifugous and hygrophilous behaviours. Closely related species are often found inside the same karstic massif or contiguous massifs (Casale *et al.* 1998; Jiménez-Valverde & Ortuño 2007; Ortuño & Toribio 2005; Reboleira *et al.* 2009). These patterns are presumably due to the geographic isolation caused by the partitioning of underground spaces and subsequent allopatric speciation (Juan & Emerson 2010). Only 3 out of 20 strictly hypogean